

23/11/17 (Reg)

Total No. of printed pages = 4

PY 132301

Roll No. of candidate

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2017



B.Pharm. 3rd Semester End-Term Examination

PHARMACEUTICS – II (Physical Pharmacy – I)

Full Marks – 100

Time – Three hours

The figures in the margin indicate full marks for the questions.

1. Answer the following questions :

(10 × 1 = 10)

- Define critical temperate of liquid state.
- What do you understand by latent heat of vaporization?
- The two types of liquid crystals are termed as _____.
- Some elemental substances may exist in more than one crystalline form and are said to be _____ and _____.
- What do you understand by latent heat of fusion?
- Complete the equation of molar heat capacity "C" = _____.

[Turn over

- (g) Give an example of Eutectic mixture.
- (h) What basic principle is involved in the preparation of Aerosols?
- (i) Give the van der Waals equation for real gases.
- (j) Glass in which type of solid?

2. Answer any three questions : (3 × 5 = 15)

- (a) Discuss and deduce first law of Thermodynamics.
- (b) Derive Henderson-Hasselbalch equation for a buffer system.
- (c) Define phase rule. Explain temperature composition diagram of phenol-water system.
- (d) Show that relative vapour pressure lowering is a colligative property.

3. Answer any Two questions : (2 × 7½ = 15)

- (a) What is buffer capacity? What are the factors that influence buffer capacity? What are biological buffers? (2+3+2½=7½)
- (b) Explain the mechanism of cosolvents in improving solubility of solutes with suitable examples. (7½)
- (c) Explain the factors affecting solubility of gases in liquids. Describe the use of surfactants to solubilize insoluble solutes. (3+4½=7½)

4. Answer any Two questions : $(2 \times 7 \frac{1}{2} = 15)$

(a) What do you mean by work of adhesion and work of cohesion? Deduce the equation which can express spreading coefficient. $(3+4\frac{1}{2}=7\frac{1}{2})$

(b) Explain the electrical properties of interface. Explain the role of zeta potential in stabilization of dispersed system. $(3+4\frac{1}{2}=7\frac{1}{2})$

(c) Explain the mechanism of solubilization. Give the HLB classification of surface active agents. $(4\frac{1}{2}+3=7\frac{1}{2})$

5. Answer any One of the following : (15)

(a) Discuss soluble monolayer and derive Gibbs adsorption equation. Give the application of adsorption in medicines and pharmacy. $(8+7=15)$

(b) Give the concept of surface free energy. Explain the concept of adsorption at solid surface and give various adsorption isotherms. $(4+11=15)$

6. Write short notes on the following : $(3 \times 5 = 15)$

(a) Factors affecting partition coefficient of drugs.

(b) Methods used to adjust pH and isotonicity.

(c) Detergency.

7. Answer any TWO questions : $(2 \times 7\frac{1}{2}=15)$

- (a) Write a short note on Arrhenius theory of electrolyte dissociation. $(7\frac{1}{2})$
- (b) Discuss the Debye-Huckel theory of solutions of electrolytes. $(7\frac{1}{2})$
- (c) What is elevation of boiling point? Discuss how molecular mass can be calculated from boiling point elevation. $(7\frac{1}{2})$
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